Docket No. SON-1212/RE
Serial No. (09/726,436)

REISSUE APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Reissue Application for
U.S. Patent No. 6,041,031
issued March 21, 2000

Attn: **Applications Branch**

Inventors: Isao ICHIMURA et al.

Reissue Application No.: **09/726,436**

Filed: December 1, 2000

For: OPTICAL DISC RECORDING/
REPRODUCTION APPARATUS AND
METHOD

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
Box REISSUE
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Sir:

This Preliminary Amendment is being filed in accordance with 37 CFR 1.173(b). Please amend the specification and claims of the application as follows:

IN THE SPECIFICATION:

Please amend the paragraph at column 1, lines 26 to 35, as follows:

-- Moreover, as the numerical aperture increases, and as the thickness of the optical disc substrate increases, there will be more affects by the wave [font] front aberration generated by the inclination or warp of the optical disc and assembly accuracy.

For this, when using a lens having a large numerical aperture as an objective lens, it is necessary to reduce the thickness of the optical disc substrate. For example, according to the DVD (digital versatile disc) specification, the substrate thickness is defined as about 0.6 mm. --.

IN THE CLAIMS:

Please amend claims 1, 7 and 8 as follows:

1. (amended) An optical disc recording/reproduction apparatus for recording and/or reproducing data by applying a beam from an optical head unit through a substrate of an optical disc onto/from a recording layer of the optical disc, wherein said substrate of said optical disc has a thickness of 0.3 mm or below, and said optical head unit comprises:

an objective lens for converging an incident beam and emitting the beam toward said optical disc;

a forward lens for converging the beam introduced through said objective lens and applying the beam to said optical disc;

a lens holder in which said objective lens and said forward lens are fixed; and

an actuator for driving said objective lens and said forward lens as a unitary block and controlling at least focusing,

said objective lens and said forward lens having (1) a total numerical aperture of 0.8 or above, (2) a center position shift tolerance of ± 80μm, (3) an assembly accuracy of a distance between the objective lens and the forward lens of ± 25 μm [or less], and (4) inclination angles less than 0.4°.

7. (amended) An optical disc recording/reproduction method for applying a beam from an optical head having an objective lens for converging and emitting the beam toward an optical disc and a forward lens for converging the beam from said objective lens and emitting the beam to a recording layer through a substrate of said optical disc so as to record or reproduce data onto/from said recording layer, wherein

said objective lens and said forward lens are fixed in a holder and are driven as a unitary block for focus control and said substrate of said optical disc a thickness of 0.3 mm or below, and

said objective lens and said forward lens have (1) a total numerical aperture of 0.8 or above, (2) a center position shift tolerance of $\pm$ 80μm, (3) an assembly accuracy of a distance between the objective lens and the forward lens of $\pm$ 25 μm [or less], and (4) inclination angles less than 0.4°.

8. (amended) An optical head unit for applying a beam through a substrate to a recording layer of an optical disc so as to record and/or reproduce data onto/from said recording layer, said optical head unit comprising:

a first lens for converging an incoming beam and emitting the beam toward said optical disc;

a second lens for converging the beam emitted from said first lens and emitting the beam to said optical disc;

a lens holder in which said first lens and said second lens are fixed at a predetermined distance; and

an actuator for driving said lens holder so as to carry out at least focus control,

wherein said first lens and said second lens have (1) a total numerical aperture of 0.8 or above, (2) a center position shift tolerance of ± 80μm, (3) an assembly accuracy of a distance between the objective lens and the forward lens of ± 25 μm [or less], and (4) inclination angles less than 0.4°.

REMARKS

In light of these amendments, prompt and favorable examination of this reissue application is respectfully requested.

Respectfully submitted,

Date: February 16, 2001

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